

Listing of the Claims:

1. (currently amended) In a computing device, a system comprising:
a modeling engine for editing modeling elements, the modeling engine connected to a user interface and operable to emulate an electronic system design having a plurality of electronic elements;

a layout engine, the layout engine connected to the modeling engine and configured to execute an automatic layout process that automatically lays out modeling elements of the emulated electronic system design; and

a set of at least one interface connecting the modeling engine to the layout engine, the set including at least one interface through which the modeling engine communicates with the layout engine to provide state-maintained user interaction with the automatic layout process other than to cancel the automatic layout process, wherein the layout engine may interrupt the automatic layout process at a first operational point and resume from the first operational point.

2. (original) The system of claim 1 wherein the modeling engine communicates with the layout engine by calls from the layout engine via the interface.

3. (original) The system of claim 1 wherein the modeling engine communicates with the layout engine via events raised by the layout engine.

4. (original) The system of claim 1 wherein the modeling engine communicates with the layout engine to provide a progress indicator to the user.

5. (original) The system of claim 1 wherein the modeling engine communicates with the layout engine to obtain status information from the layout engine.

6. (original) The system of claim 1 wherein the modeling engine communicates with the layout engine to interrupt the automatic layout process.

7. (original) The system of claim 6 wherein the modeling engine communicates with the layout engine to preserve state of the automatic layout process.

8. (original) The system of claim 7 wherein the modeling engine communicates with the layout engine to preserve the state of the automatic layout process by passing an interface thereto.

9. (original) The system of claim 7 wherein the modeling engine communicates with the layout engine to restore the state of the automatic layout process, and to resume the automatic layout process.

10. (original) The system of claim 9 wherein the modeling engine communicates with the layout engine to restore the state of the automatic layout process by passing an interface thereto.

11. (original) The system of claim 1 wherein the layout engine comprises a pluggable software component.

12. (original) The system of claim 1 wherein the modeling engine comprises a pluggable software component.

13. (original) The system of claim 1 wherein the modeling engine communicates with the layout engine to obtain capability information from the layout engine.

14. (currently amended) A computer-implemented method, comprising:
starting a layout engine to lay out electronic model elements that are part of an emulated electronic system;
receiving information from the layout engine indicating that it can be safely interrupted within a current state; and
interrupting the layout engine in the current state based on the information,
such that an automatic layout process may be interrupted at a first operational point and resume from the first operational point.

15. (original) The method of claim 14 wherein receiving information comprises receiving an event.

16. (original) The method of claim 14 further comprising, receiving a request to interrupt the layout engine, and waiting for the information from the layout engine indicating that it can be safely interrupted.

17. (original) The method of claim 14 wherein the request comprises a user action.

18. (original) A computer computer-readable medium having computer-executable instructions for performing the method of claim 14.

19. (currently amended) A computer-implemented method, comprising:
starting a layout engine to lay out electronic model elements that are part of an emulated electronic system;

providing information to the layout engine by which the layout engine preserves state information;

interrupting the layout engine, such that an layout process may be interrupted at a first operational point and resume from the first operational point;

providing information to the layout engine by which the layout engine restores state from the state information; and

restarting the layout engine from the restored state.

20. (original) The method of claim 19 wherein starting the layout engine includes communicating information to the layout engine through an interface thereof.

21. (original) The method of claim 19 wherein providing information to the layout engine by which the layout engine preserves state information includes passing an interface to the layout engine.

22. (original) The method of claim 19 wherein interrupting the layout engine includes communicating information to the layout engine through an interface thereof.

23. (original) The method of claim 22 further comprising, receiving information from the layout engine indicating that it can be safely interrupted.

24. (original) The method of claim 19 wherein providing information to the layout engine by which the layout engine restores state information includes passing an interface to the layout engine.

25. (original) The method of claim 19 further comprising, receiving events from the layout engine.

26. (original) The method of claim 25 wherein at least one of the events includes progress information.

27. (original) The method of claim 19 further comprising, calling the layout engine to receive status information therefrom.

28. (original) The method of claim 19 wherein the status information includes data corresponding to time remaining to complete laying out the model elements.

29. (original) A computer computer-readable medium having computer-executable instructions for performing the method of claim 19.